



Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Peruque Creek

Waterbody Segment at a Glance:

County: Warren
St. Charles
Nearby Cities: Wright City
Foristell
Wentzville
Length of Impairment: 12.5 miles
Pollutant: Non-Volatile Suspended Solids (NVSS)
Pollutant Sources: Urban and Rural Non-Point Sources (runoff)



State map showing location of watershed

Proposed for addition to the 2002 303(d) list

TMDL Priority Ranking: To be determined

Description of the Problem

Beneficial uses of Peruque Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

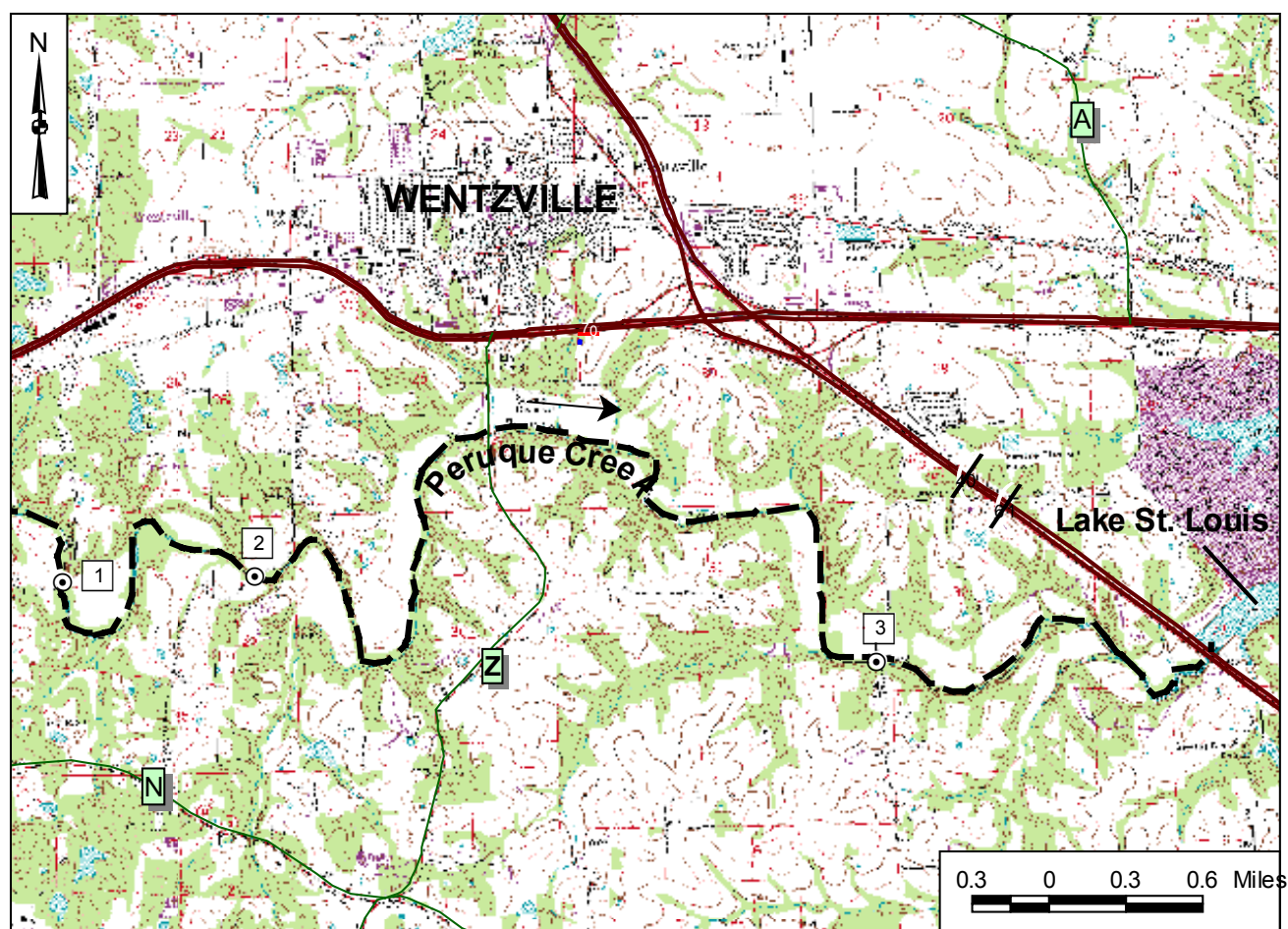
- All waterbodies in Missouri are protected by the *general* criteria (standards) contained in Missouri's WQS, 10 CSR20-7.031(3). These criteria (also called *narrative* criteria) list substances that all waters "shall be free from". The sections that apply to Peruque Creek are (A), (C) and (G) and they state:
 - Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
 - Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses.
 - Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.

Rapid rates of sedimentation in upper Lake St. Louis suggest that excess erosion and high sediment loads are a problem in Peruque Creek upstream of the lake. This is the basis for proposing that

Peruque Creek be added to the 303(d) list. The impairment is listed as Non-Volatile Suspended Solids (NVSS). This term covers the silt, sand or gravel that is associated with erosion and sedimentation.

In 2000, Missouri Water Quality Monitoring volunteers collected water quality data at three sites along Peruque Creek upstream of Lake St. Louis (see map below). In an effort to better understand the stream, this volunteer data for Peruque Creek has been compiled and summarized (see table below). Sampling occurred from April through July 2000. Volunteers sampled the water for temperature (Temp in degrees Celsius), dissolved oxygen (DO), specific conductance (SC), total solids (TS), total dissolved solids (TDS), turbidity (Turb), and pH. Each sampling site was visited four times for pH and six times for all other constituents with one exception – only five turbidity measurements were reported for Hepperman Road.

Sampling Sites on Peruque Creek in St. Charles County, Missouri



--- Impaired Segment* → Direction of flow

*This map shows about 7.5 miles of the 12.5 miles that are proposed for the 2002 303(d) list.

Peruque Creek: Water Quality Data Averages

LOCATION	Temp C	DO mg/L	SC us	TS mg/L	TDS mg/L	Turb NTU	pH* SU
1. Hepperman Road	20	7.5	458	181.5	228.3	12.8	7.9
2. Wilmer Road	20	7.8	447	207.2	215.3	14.0	8.0
3. Duello Road	20	6.8	448	247.9	221.7	20.2	7.9
* Median							

Summary: Specific conductance, pH, and temperature measurements at all of the sites appeared to be within normal ranges. Average dissolved oxygen levels decreased in a downstream direction, but dissolved oxygen levels were well above the Missouri Water Quality standard. Remember that aquatic life requires high levels of dissolved oxygen to survive. The values associated with solids and sediment are of primary concern in Peruque Creek. Although there are no numeric standards for total solids or turbidity, the significant increase in these numbers in a downstream direction suggest violations of the narrative criteria. The data is, however, limited. Additional surveys focusing on embeddedness (how deeply the rocks on the stream bottom are buried by sand or silt) and sediment load measurements are needed to provide a definitive answer as to the extent of the impairment. When large substrate such as cobble (2-10 inch size stones) becomes deeply embedded in silt or sand, the amount of habitat available for aquatic insects and fish reproduction is reduced.

For more information call or write:

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